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ABSTRACT

This paper reports on the initial stages of developing training modules for study by students on the Internet in a course on local government. These training modules and their development are part of the "Teaching and Learning on the Internet Project" at the Royal Melbourne Institute of Technology (RMIT) (Australia). Some of the advantages of this type of training over traditional off-campus distance education are discussed along with its limitations. Preliminary issues in setting up training courses on the Internet are discussed, including costs and funding, teacher involvement in decision making, and designs that maximize ease of use and student interest. The elements of a successful approach to the delivery of online training are also summarized. (Author/AEF)

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Report on the Teaching and Learning on the Internet Project — RMIT TAFE

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This paper reports on the initial stages of developing training modules for study by students on the Internet in a course on Local Government. It has been written by a teacher with minimal background in computing and is intended to assist other teachers to develop skills in the area of training provision on the Internet whilst avoiding some of the difficulties encountered by the author. The paper canvasses some of the likely advantages of this type of training, in particular in comparison with traditional off campus study methods, as well as some of its limitations. Issues for teachers and learners in the provision of training courses on the Internet are discussed. The paper concludes with a description of the elements of a successful approach to the delivery of on-line training

Training modules developed for delivery on the Internet as part of RMIT's "Teaching and Learning on the Internet Project" are within an Associate Diploma of Local Government. The model developed for this course is progressively being adopted by other courses in the Public Administration and Community Justice fields. With successful trialing and modification this model is anticipated to be extended across a broad range of courses at RMIT.

Readers are invited to view materials associated with these modules at:-

http://wwwtafe.lib.rmit.edu.au/localgov/localgov.html?

and make comment to the author at opentser@ozemail.com.au

Primary features of the model include:-

- Use and integration of the resources available on the Internet as teaching assets.
- Efforts at integration of the on-line learner with the RMIT campus and community.
- Sections on "Studying On-line" providing advice and sites for software to assist the on-line learner.
- On-line enrolment of students via eMail.
- Use of a range of communication software including eMail, PowWow and Hypernews to maximize the interaction capacities of the Internet for teaching.
- On line access to RMIT library and range of other resources.
- Full course and module information available on-line.
- Student and teacher conferencing.
- Bulletin board for posting of class news and assignments.
- Electronic submission of assignments, marking and feedback.
- Constant monitoring of learner reaction to internet training delivery approach.
- An evolving method of teaching which is sensitive to learner needs.

This work is very much in progress and is currently being trialed with a class of fifteen students, which is leading to continued change and improvement.

Potential for Training Delivery on the Internet for Students and Colleges

The most obvious possibility for training provision on the Internet is its potential for broadening the access to training by students. In the case of training for local government workers, because many of them are located outside of the metropolitan area, they often are geographically isolated from training institutions. Where they have access to the necessary infrastructure to study on the Internet, providing training in this way is of particular benefit to them.

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Similarly, potential students who are home bound for any reason may be interested in this mode of study. For existing students who are attending part time the current structure of the course requires them to physically attend classes at the college outside of work hours. This is often an onerous demand on full time workers with family and other responsibilities and study through the Internet will be of a major advantage to them in progressing through their course.

An extension to those benefits discussed above as part of increasing access to training is that from the training institutions' perspective. It potentially vastly increases the possible "reach" of training. Not only are the problems of students who are physically distant from training institutions alleviated, training on the Internet allows those institutions who themselves are located away from major population centres to enrol students from any location. In this way the possibility is open for a college to become in a sense "geography free" and no longer bound to enrolment numbers which reflect the population which can physically access their campus.

The Internet will allow colleges to cooperate in a fashion which greatly benefits their students. In the example of local government training one course may be in local government law requiring a specialised body of knowledge held by teachers to offer the course competently. If say five colleges are offering local government law they currently all require a teacher with that level of expertise. However, if the course on local government law is available on the Internet then enrolled students in one college will be able to enrol with another college with the requisite expertise. The advantages of bringing that expertise to a larger student population rather than having other colleges replicating the course at a lower standard have obvious advantages for the training system overall.

Sharing of skills means that colleges will be able to significantly improve their "customer service" to students and the overall quality of the training provided. Similarly customer service is vastly improved in Internet training systems which allow students to enrol at a time that is convenient to them rather than at college specified semester or term dates. In other words students can start to work on training in a way that is free of time and place.

Finally from a college point of view the potential unit cost, or dollar cost per student, of Internet training will be significantly much lower than is currently the case. Where the college becomes much less tied to maintaining expensive physical infrastructure such as classrooms, which in any case remain idle for much of the year, large savings in expenditure will accrue to the college.

The Internet Compared to Traditional Distance Education

If Internet training is thought of as a variant of off campus distance education it has very significant advantages over its predecessors. One emphasis in the present project has been to maximize student involvement through the employment of the Internet's capacities for communication and information retrieval. Where distance education is based on print based materials it cannot match the Internet's ability for immediate contact with teachers and other students or it's ability to maximize student active involvement in their course of training.

Students communicate and collaborate with their teacher and dispersed colleagues and peers with an immediacy not previously available. They are able to operate as information managers and researchers in their studies and develop skills associated with each of these activities in electronic communication as well as learn the substantive content of the course they are undertaking.

Where files can be rewritten virtually overnight the currency of information provided on the Internet can be assured. For example in a module called "Introduction to Australian Government", about the operation and issues of government, a major political issue may develop. In that case students can be immediately directed to web sites containing information or discussion about that issue.

Finally, traditional off campus distance education material is written for a generalised student base making little concession to the range of potential students' needs. However, with the Internet it is a relatively simple matter to customise information so it best suits the learning needs of small groups of students. For example with the recent emphasis on work based education a college may have a number of students enrolled from one local government authority. If this were the case it is open to the teacher to provide materials to students by tailoring existing files with examples and exercises directly related to the learners own workplace.

Preliminary Issues in Setting up the Project

For the teacher embarking on a project to develop Internet training one of the first issues to confront is how the project is to be resourced. Our experience has been that there are very significant costs associated with a project of this kind and that necessary resourcing for a successful project needs to be substantial at the outset.

Costs will vary depending on the availability of resources within the college however they may include the cost of a computer server, modem connections, technical and computing assistance, costs associated with the development of courseware and the costs of the teachers own time in developing their skills. Much of the latter is time spent on "environmental scanning" on the Internet to see what others have done and generally spending time on-line to become acquainted with the possibilities of the Internet as a teaching tool. Thankfully the media has focused so much on the Internet recently that decision makers within colleges are familiar with it, at least in a generalised way, and if presented with some of the advantages to colleges canvassed above may be willing to finance projects of this sort.

Whilst the up front cost of development may be relatively high there is a point in projects where development is swift and returns begin to materialise. In this project we have focused in the local government area on the building of a model which could be adapted to not only all the courses in local government but also a range of other courses in other disciplines. Thus on completion of this model a large number of courses and subsequently a large number of students will be able to be enrolled.

Further to the issue of costs and funding it has been the experience of this project that it is difficult to apply for funding for Internet projects because of the uncertainties of what realistic dollar amounts for a project might be. Where funding applications are for types of projects that have been undertaken previously it is a relatively simple matter to provide realistic costings and for that matter timelines based on previous experience. With projects such as this, where new ground is being explored, costing is difficult and can only be roughly estimated and depends a wide range of variables such as equipment availability, time donations by teachers, costs of technical help etc. One of the outcomes of the present project is to develop realistic funding models for future projects. As a guide it might be said that whatever you may feel the cost of a project is, a more realistic figure is probably double that.

A consistent theme in this project has been that while there are a multitude of technical and computing issues to resolve the primary issues are educational. This stance is necessary to ensure that outcomes are driven by what teachers believe is educationally useful rather than driven by what computing experts want to provide. At its simplest level this approach means that teachers involved in the project suggest what they would like to be able to do with the Internet. Technical staff then take these directions as problems to solve by, for example, finding suitable software.

With educational concerns at the forefront teaching experts are likely to emphasise the use of the Internet in innovative ways to maximize interactivity with and between learners and teachers, active learning strategies and learner support. These kinds of approaches are more likely to ensure that the learner gets a educational service that promotes his or her interests.

A further early issue is the one of design. A cursory examination of Internet publishing shows that the standard of web page design is often very high. In order to maintain students interest and allow them easily to use training materials provided, emphasis from the outset should be given to aspects of design and layout. This includes graphics as well as ensuring a logical flow of information which is presented clearly, and in a way that allows the learner to easily navigate through materials. Further to this issue with the ever increasing use of the Internet, colleges will need to maintain an image of their organisation on the Internet which is consistent with the other external images presented to students and the general public.

The Role of Teachers

The introduction of Internet training will significantly alter the work of teachers. In the most obvious way teachers will be spending more of their work time at a computer sending and replying to eMail, writing teaching materials, running on-line tutorials and conducting research for their courses on the Internet.

Less obviously teachers will be involved in a different type of learning than that with which many are familiar. Where much of their work has been in the role of a transmitter of information and a guider of student learning activities this will substantially change in the learning environment enabled by the Internet. Where encouragement is given to students to access the vast range of information available on the Internet and to actively communicate with others around the world on a particular topic, the teacher will become much less the single authority on subject material and in many cases a co-learner with their students. The teachers major responsibilities will be to facilitate students to achieve the particular competencies or learning outcomes associated with a course as well as have responsibility for the monitoring of quality.

In discussing a new role for teachers we are really talking about a new set of demands on teachers for professional development. Providing training on the Internet will require teachers to be subject expert, a "net" expert, a teaching expert and an industry expert. In essence this means certainly different work for teachers and probably, in the short term, more work. The response of the colleges to this must be one of negotiation and adequate provision of professional development activities. Teachers themselves will need to recognise their own needs for skill development.

Another issue uncovered for teachers in this stage of the project has been the absolute necessity for access to technical support from staff who are both technically competent and able to communicate well with teachers who may be at very basic levels of understanding. Confusing or intimidatory advice from technical staff is one of the major stumbling blocks for teachers coming to terms with firstly the technology and then the range of issues associated with the professional and educational implications of training on the Internet.

On-Line Learners

The first issue for learners in this project has been the mastery of the computing skills required to study on the Internet. Students with whom the model has been trialed thus far have previously completed introductory computing modules and so have had keyboard and mouse skills as well as the self confidence to approach this type of study. From this base progress in learning to use the Internet has been surprisingly quick. It would be expected that younger students, because of more familiarity with technology of all forms, will be better able to engage with this new form of training delivery. However, it is apparent that rather than the fairly ad hoc approach to teaching students about the Internet used in this project there is a need for a systematic, competency based training module on the subject of "Learning to Learn on the Internet".

Initial observations of learners in this project are suggesting a range of approaches to the course. Some learners are undertaking work to meet the minimum requirements of the course whilst others are heavily involved in seeking out additional information, new ways to use the technology to their advantage etc. This points to a dimension of individual differences in learners which will be the subject of research as this delivery mechanism becomes increasingly widespread.

Learners have different learning styles and preferences as well as different knowledge and computing skills starting points. Internet learning allows students to progress through a course of study at their own rate but in setting up courses on-line it is necessary to think about providing the broadest range of study modes as possible to learners. It is also important to remember that education in its traditional form has also contained elements of social learning particularly for young people. Much of the maturing as individuals and intellectual development takes place in a social setting. It would be of great concern to many educationalists if young students were ultimately limited in their opportunity to interact with others in a physical environment.

Access and equity will be large concerns for learners. Where many students do not have Internet access it will require efforts on the part of educational institutions to alleviate this inequality. This may include unlimited access to computer laboratories on campus and in other community locations and the lending of Internet capable laptops to students for example.

Finally there are a range of pedagogical issues which need to be understood and addressed. These will become more apparent with the further use of this technology but initial observations suggest that they will include things like what do learners absorb when "web surfing" and how is this different from examining printed materials? Also how will learners interact with others on the net and what

social norms and protocols will develop? Discussion with students for example has led to a contract with each individual on the proscription of materials that might be offensive during classes.

Getting Started on On-Line Training Delivery

For the teacher commencing on a project in this area it has been essential to develop partnerships and a team approach to the work required. This team has been composed of teachers, technical staff with the skills and sensitivities mentioned previously, staff with expertise in flexible delivery and insights into how students learn in this mode and, importantly, decision makers who command a budget which can finance the project.

Such a team recognises that no one individual will command all of the skills required to undertake such a project and provides for group learning by all the staff involved. Gradually through mutual respect and patience all members of the team will be able to contribute and raise the skill level of other participants. To achieve this sort of atmosphere has required many informal meetings, discussion of mutual problems and an openness and sharing of knowledge and problem solutions.

Whilst a team approach is emphasised here, this project has been predicated on the idea that whilst there are significant computing and technical problems to overcome the substantive issues are educational ones. That is to say that the project has been driven by teachers and concerns around student learning and not by the technology itself. The flow of ideas for development of the model has been in general teachers specifying what elements they believe will be important to facilitate student learning and technical staff supplying software and programming solutions to allow those elements to be catered for. For example, where it has been considered important for students to be able to undertake a course in as simple and as intuitive a way as possible this has required some technical innovations to make this possible.

Whilst it is recognised that different subject material will require different approaches to allow it to be offered on the Internet when embarking on a project of this kind it is important to attempt to build a generalised model for training delivery. As has been mentioned this has allowed rapid expansion of gains made to new courses once a satisfactory model has bee constructed and trialed.

Curriculum used initially for this project consisted of materials already developed in print based flexible delivery format. This material is available for students on-line and can be simply downloaded by them into their computer's word processing software. As the project has progressed it has become obvious that this is not substantially different from providing the same materials to learners in print and does not take full advantage of the educational possibilities of the Internet. Class preparation for the teacher is now more similar to traditional preparation. It has consisted of preparing materials for learner review (web pages), interaction and questions.

Evaluation for this project so far consists of a feedback form that students are required to complete whenever they submit an assignment. This evaluation tries to gauge the students response to on-line learning and is expected to generate the starting point to explore many of the issues raised earlier in this paper.

Conclusions

It is apparent to anyone with a cursory understanding of contemporary technological developments that the Internet represents a revolution in communication. Where teaching is predominantly an exercise in communication the Internet represents a revolution in teaching.

With the increasing sophistication of our students in computing there will be demand for on-line delivery of training. Coupled with this students will be able to choose the institution with which they undertake a course of study. In this environment colleges and teachers will have little choice but to provide these services. However colleges will presumably not be providing all courses on-line because of developmental and maintenance costs. As a result colleges will need to make some strategic decisions about where their educational strengths lie. That is what courses they feel they can compete nationally and eventually internationally and, as a consequence where their emphasis for on-line delivery will be.

Finally whilst we must come to terms with the vast potential of the Internet this view must be tempered by a recognition that the Internet is a supplement to other methods of training delivery. That is to say it is one addition to a range of delivery vehicles. It is apparent that this type of training is

neither educationally suitable for all subject material or all students. What are the best uses of the Internet are largely still unknown.

A summary of elements of a successful approach to development of delivery of on-line training are:-

- Fostering of institution support particularly for resourcing of projects and release of teachers.
- Establishment of project team with requisite range of skills.
- Ensuring that the driving force for the project comes from teachers not technologists.
- Strategic organisational approach to what courses to target for development.
- Emphasising good design to engage and maintain student interest.
- Maximising the communication and information retrieval possibilities of the Internet rather than information dissemination.
- Focus on the building of a model of training delivery that can be adapted to a range of courses.
- Immediate, sympathetic and good quality communication on technical issues to assist learners and teachers.
- Professional development and time release for teachers.
- Continual improvement, responsiveness and innovation in teaching approaches to best fit students and subject material.